45 per cent of their original amino nitrogen and were no longer coagulable by heat at reactions higher than pH 5.5, they often retained their full agglutinating titer. Since then ninhydrinization has been applied to rabbit serums. In his latest technique, antityphoid rabbit serum is dialysed against a phosphate buffer solution, and the serum "dilated" to three times its original volume with the same buffer. One volume is freshly prepared 1 per cent ninhydrin solution in distilled water is then added and the mixture incubated for two hours or more at 37°C. The protein precipitate that forms on this addition may either be removed and the serum fractionated, or retained and eventually redissolved by dialysis against distilled water.

In a typical experiment a rabbit serum having an original typhoid H-agglutinin titer of 1:10,000 had its titer increased three-fold by the end of 30 minutes of this incubation, and further increased to 1:40,000 (four-fold) by the end of 2 hours. Incubation for 18 hours reduced the titer to the 30 minutes three-fold level (1:30,000). Every rabbit antiserum thus far tested showed this increase, though not always to the same degree. The serum showing the greatest increase was from an animal that had been under periodic immunization for over a year. On fractionation of the ninhydrinized serum most of the H-agglutinin was demonstrable in the "salt-soluble portion of the acid precipitate." This portion contained only 14 per cent of the original serum proteins. While the original untreated immune serum contained 1,100 H-agglutinin units per mg. of total N, and the 30 minutes ninhydrinized whole serums contained 3,300 such units, the salt-soluble fraction contained 16,000 units per mg. N.

Isolation of the active principle of immune serums by a saltingout process is of course not new. The remarkable increase in antibody titer per mg. of total N as a result of ninhydrinization, however, is a phenomenon not previously described. Eggerston suggests four plausible hypotheses to account for this increase, the simplest being an assumed depolymerization or breaking down of large natural antibody aggregates into simple units, thus increasing the number of active molecules. Whether or not this theory is confirmed, the possibility of improving natural antibodies by simple chemical modification opens up a new field of immunochemical research of almost unlimited clinical promise.

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SPLENIC STREPTOLYSIN

Isolation of a splenic component with a high specific bactericidal action on hemolytic streptococci is currently reported by Nutini[1] and his coworkers of the Institutum Divi Thomae, Cincinnati, Ohio.

Autopsy spleens showing no gross pathological lesions were thoroughly minced and alternately frozen and thawed 3 times in an equal volume of Drew's solution. The material was passed through a Büchner filter, the filtrate centrifuged and the sediment discarded. To the clear supernatant fluid 95 per cent alcohol was then added periodically over an interval of several days to produce a final alcoholic concentration of 80 per cent. The secondary precipitate thus formed was filtered out and discarded. The resulting clear alcoholic solution was concentrated in vacuo at 30°C to the original volume of the Drew's solution and was then sterilized by passage through a Seitz filter. The resulting sterile filtrate was then evaporated to dryness, to get rid of traces of alcohol. The yield was about 2 g. of solid material per 100 grams of spleen. Solid material corresponding to 0.5 per cent of the Drew's extract added to 20 c.c. of beef-heart infusion agar completely inhibited the growth of all strains of hemolytic streptocci. Similar streptolytic titers were obtained with extracts from bovine spleens. Control tests showed no bactericidal effects of the human extract on pneumococci, staphylococci, or E. coli, indicating that the splenic bacteriolysin is at least relatively specific for streptococci. Since the active principle in this extract is thermostable and is not precipitated by 80 per cent alcohol, Nutini believes it is an entirely new immunity substance differing from the lysozymes and bacteriostatic enzymes of previous investigators.

Work is now in progress on the toxicity of the new splenic extract and its therapeutic efficiency on streptococcus infected animals.

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MEDICAL EPONYM

Sibson's Groove

Francis Sibson (1814-1876), while resident surgeon and apothecary to the Nottingham General Hospital, published a paper, entitled, "On the External Signs of the Position of the Lungs and Heart," in the *London Medical Gazette* (6:754-760, 1848). A portion of the article follows:

"In the healthy robust man the well-formed chest has certain prominences and depressions indicating the organs underneath. . . . A depression crosses the seventh and sixth costal cartilages from the lower end of the sternum to the fifth intercostal space. These depressions are just below the thoracic prominences; the right depression exactly indicates the lower margin of the right lung, while the left depression indicates the lower boundary of the heart."—R.W.B., in *New England Journal of Medicine.*